

## "ENGINEER TRAINING AND RECRUITMENT"

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March fifteenth of this year marks the second anniversary of my employment with the Kentucky Highway Department and I want to say in the beginning that it certainly has been two full years of interesting and challenging work. The cooperation from all divisions has been excellent and I am glad I have had a small part in launching this tremendous highway program. My job the past two years has been concerned primarily with procuring competent engineering personnel from the University of Kentucky and from the better engineering colleges in the south, organizing technical training programs for new high school graduate recruits to train as technicians as engineering aids and organizing courses to upgrade certain existing personnel. The greatly expanded highway program has increased the need for highly trained competent people. The supply of trained engineering personnel has been in rather short supply for several years now, especially in highway construction, the Kentucky Highway Department being no exception. Industry through higher salaries and better working conditions lured several good experienced engineers into their fold and left highway departments and several other governmental agencies short on qualified personnel. In a situation like this, the most logical thing to do is to use the best you have most effectively to get the job done and that is just what the Kentucky Highway Department, along with practically every other highway department in the south had to do.

Enrollments in engineering colleges were down until a few years after the war, compounding the situation. Government contracts to private industries caused some businesses to hoard engineers in anticipation of big contracts. The engineer supply has been tight for some time, but seems to be easing a little as far as highways are concerned. Highway Departments in general have increased salaries and improved working conditions until at the present time they are fairly competitive with industry in job opportunities for graduate civil engineers especially.

In 1948 in anticipation of this acute shortage the Kentucky Highway Department, with the cooperation of the University of Kentucky, started a scholarship program at the University of Kentucky for students interested in studying civil engineering. The first few years about twenty students were selected by competitive examinations given by the University and scholarships awarded by the University scholarship committee. The Highway Department paid for sixteen of these scholarships and interested highway contractors and associations for four of these. The students were given \$500.00 each for their freshman year, paid monthly, and provided summer work by the Highway Department. The students agreed to work one year for the department after graduation. This obligation was rather hard to adhere to during the Korean war years, but at the present time the students are fulfilling their obligations practically one hundred percent. The number of scholarships has been increased to thirty at the present time exclusive of the industrial scholarships. The stipend has been increased to \$80.00 per month for freshman students and \$100.00 per month for sophomore students who maintained a 2.5 grade average the first year with no failures. Freshman students must maintain a 2.0 point average to stay in the program. The mortality rate is pretty high the first year. We have secured some excellent employees through this program and is one I think, should be continued and strengthened. The scholarship committee tries to distribute the scholarships geographically as far as possible and still

get good students. We would solicit your support in locating good young men to apply for these scholarships. If you know of good young men that might be interested in this program have them contact their high school principal and take the examination when it is given in their school. For information concerning the scholarship these students should write Dean R. E. Shaver, College of Engineering, University of Kentucky, Lexington, and ask for information on the Highway Scholarship in Civil Engineering. I would like to pause here to give Dean Terrill, Mr. W. B. Drake and their staff at the Research Laboratory credit for doing an outstanding job with these students after they get to the University. The students are required to report to the lab one afternoon a week, where they are oriented in the principles of operation of the highway department. It is my responsibility to keep up with these students, advise with them on highway personnel matter such as summer employment and permanent assignment after graduation. These men also have preference in employment.

Up until two years ago these scholarship boys and a few other graduates were about the only ones applying to the department for work and with the exodus of good men going to industry, the supply of graduate engineers was getting rather low. My first task after coming with the department was to try to replenish the supply of graduate engineers. The first year after a late start, three men were secured from Alabama, one from the University of Louisville and about fifteen from the University of Kentucky. In the fall of 1957 Mr. Roy Ellis, a graduate of the University of Kentucky with two years in engineering at the University of Kentucky and masters degree in education with a major in testing and guidance work was added to our staff to assist with the recruiting and to set up a centralized testing center in the Highway Department. Mr. Don Young, a University of Kentucky graduate, was also added to help with the office work and now edits the "Highway Herald", the department newspaper.

Mr. Ellis and I visited about twenty-five colleges last year and brought in about seventy graduates, placing them in practically every division of the department. We employed about one-half of the civil engineering graduates at the University of Kentucky the past year. Several of whom had had experience with the department and therefore make very good employees.

About twenty-five men have been brought in from out of the state from about twelve different schools. A few new ideas from these men may be good for us. About thirty men have been employed from this year January graduating classes. The retention of these people has been very good and if we are as successful the remainder of this year as we have been in the first part we should be over the hump as far as graduates are concerned. Several of these young people have been called into military service and others will probably be called so we cannot relax our efforts too much until this situation is well in hand and these men can be released for from six months to two or three years for military duty without crippling us.

During the summer months we have been trying to spend a great deal of time in the field studying the type of men we have on the field parties and trying to determine what can be done to improve their effectiveness on the party and to find out what type of training is needed in each area. We also try to visit each new graduate each year to determine if there are personnel problems that we might help with and to answer questions these men may have. We feel that this personnel contact and the keeping of accurate experience data on these men will enable the department to make better selections of men for leadership positions.

It is the intent of the training section of the personnel division, to keep an accurate record of the training and experience of all the engineering personnel by recording this information on I.B.M. cards so it will be readily available in the form needed. The I.B.M. machines can separate the cards into several classifications and print the information automatically.

We feel the training of highway personnel is an important part of highway construction and will result in better roads being built in Kentucky. Higher

standards being imposed upon the department by the Federal Government and increased road usage calls for more technically trained men to construct our highways. Last year about fifty boys were trained for twelve weeks to supplement the forces in the drafting rooms in the area offices. In addition to these drafting trainees about one hundred thirty men were given eight weeks training in construction procedures including mathematics, surveying, soils and related subjects. At the present time we have approximately 175 men in training in a course similar to the one held last year for construction except a little more emphasis is being placed on soils. We are planning additional training for men who have had the first course so that they can advance to positions as levelmen, instrumentmen, and inspectors. These positions are difficult to fill from outside personnel and of necessity must be trained and promoted from within the ranks.

Over 200 good men with classifications of instrumentmen or higher are now in a night course sponsored jointly by the Highway Department and the University of Kentucky. This course is being offered to these men to supplement their highway experience to make them better highway employees and to enable them to qualify for registration. This course is divided into four twelve week sections and will be completed early in 1960. The men will have covered a review of mathematics, strength of materials, concrete, and steel design and a comprehensive section on surveying, hydraulics and related subjects. The course is being well received and there are very few dropouts.

Several of the graduate engineers have availed themselves of the opportunity to do graduate work at the University either by working part-time in our Bridge Extension office located on the campus at our Materials Research Laboratory located near the campus or in our Area Design Office located in the city of Lexington while attending school or by using our cooperative plan of working one semester and going back to school one semester. We believe these plans prove very beneficial to the highway department as well as to the students. We use these fellows almost exclusively to teach our technician aids in the area offices.

A few students from the University of Louisville do their cooperative work in our Area Design Office in Louisville. These men make good employees before and after graduation.

These programs, we feel are very essential to the successful operation of the highway department and that in a few years practically all of our men will have had some form of technical training making them one of the better highway departments in the country.

I am proud to be a part of this vast undertaking and to express my appreciation to the Personnel Director, the Chief Highway Engineer, his assistants, the Directors and all who have cooperated so whole heartedly in getting this job rolling and on the way to a great Kentucky Highway Department.